REMARKS

Claims 8-11 and 30-56 remain pending. In the present Office Action, claims 8-11, 38-39, 41, 48-51, and 53-55 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Olshansky et al, U.S. Patent No. 6,061,357 ("Olshansky") in view of Terry, U.S. Patent No. 6,178,161. Claims 30-32, 34-36, 40, 42-44, 46-47, 52, and 56 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Olshansky in view of Terry and Treadaway et al., U.S. Patent No. 7,002,941 ("Treadaway"). Claims 33, 37, and 45 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Olshansky in view of Terry and Snodgrass et al., U.S. Patent No. 5,365,551 ("Snodgrass"). Applicants respectfully traverse these rejections and request reconsideration.

Applicants respectfully submit that claims 8-11 and 30-56 recite combinations of features not taught or suggested in the cited art. For example, claim 38 recites a combination of features including: "encapsulating the Ethernet frame within a first frame; and transmitting the first frame over a very high speed digital subscriber line (VDSL) facility".

The Office Action asserts that the combination of Olshansky and Terry teaches the above highlighted features, citing Terry to teach encapsulation. Applicant disagrees that the proposed combination establishes a *prima facie* case of obviousness. First, the proposed modification of Olshansky by Terry would not work—indeed, if modified as proposed by the Office Action, Olshansky would not work for its intended purpose. Second, the alleged motivation to combine these two references that is advanced in the Office Action is fundamentally flawed. Finally, even if there were a valid motivation to combine Olshansky and Terry, the Office Action does not satisfy its burden with regard to features that are admitted to be lacking from this proposed combination.

The Proposed Combination of Olshansky and Terry Would Not Work

Terry teaches encapsulating an Ethernet frame within an Ethernet Collision Avoidance Protocol (ECAP) frame that is defined by Terry (as opposed to an industry standard definition). See, for example, Fig. 2. Notably, **the ECAP frame is large**

enough to encapsulate the Ethernet frame by definition, since it is defined to be a frame that includes the encapsulated Ethernet frame, preceded by overhead (O/H in Fig. 2) and followed by a check sequence (CHK in Fig. 2). **In contrast, ADSL frames (as taught in Olshansky) are fixed-size frames defined by the ADSL specification** (for a given transmission rate). For example, Applicants have attached a copy of the ADSL specification (ITU G.992.1). Section 7.4 of the ADSL specification describes the fixed frame structure. Additionally, an article by Mike Rodbell titled "ADSL Frame Formats - Digital Delivery" dated February of 2000 illustrates the fixed frame format (see Fig. 1).

Thus, the mere teaching of encapsulating Ethernet frames in non-standard ECAP frames is insufficient to teach the skilled artisan how to encapsulate Ethernet frames in ADSL frames. Modification of the ADSL frame definition would be required, and there is no teaching in either Terry or Olshansky that would lead one to make the modifications, nor how one would modify the ADSL frame to provide a workable solution. On the other hand, the present specification does teach how to encapsulate Ethernet frames in frames for transmission on VDSL and how to transmit those frames on the VDSL facility, even though the VDSL specification defines fixed-size frames.

Terry's teachings regarding ECAP frames include: "FIG. 2 illustrates one example of an ECAP data frame, comprising overhead information O/H, followed by a single Ethernet frame having the known form described below, followed by a check sequence CHK." (Terry, col. 6, lines 40-43) Terry goes on to teach that the "O/H field at the start of the ECAP frame for example consists of a few bytes comprising a preamble and start-of-frame (SOF) indication of a suitable form for the modulation method in use by the modems 12 and 14, possibly followed by other information such as an ECAP frame sequence number for frame identification in known manner (e.g. for identifying frames for acknowledgement or retransmission). The check sequence CHK at the end of the ECAP frame conveniently comprises a CRC sequence which can be produced in exactly the same manner as the FCS field of the Ethernet frame, the CRC operating on all of the information in the ECAP frame following the SOF indication up to and including the FCS at the end of the Ethernet frame." (Terry, col. 7, lines 13-25). Accordingly,

Terry's ECAP frames are variable length frames based on the encapsulated Ethernet frame size. **These teachings simply cannot be applied to ADSL's fixed-length frames without leaving the ADSL modems unable to communicate with each other**. The ADSL modems rely on the ADSL specification to communicate and thus expect fixed-length frames at regular intervals, not variable length frames as taught by Terry. Indeed, Terry's ECAP frames may even be larger than the fixed-length frames of ADSL. If the Office Action were to instead assert that Terry's modems could replace Olshansky's modems, then Olshansky would no longer be using an ADSL facility, but rather would be using an ECAP facility. The combination would then fail to teach or suggest the features of claim 38.

The Alleged Motivation to Combine Olshansky and Terry is Fundamentally Flawed

Furthermore, the Office Action concludes that it would be obvious to implement the encapsulation taught by Terry into Olshansky to reduce cross talk and other interference (see Office Action, page 3, third paragraph). Applicants respectfully disagree. First, **Olshansky does not even appear to be concerned with noise and cross talk,** and thus the skilled artisan would not be motivated to look for teachings regarding noise and cross talk when considering Olshansky's system. Olshansky's system is generally concerned with flow-controlling transmission and reception of packets over ADSL. There is no indication in Olshansky that noise and cross talk are of any significance in his system.

Second, even if one were to assume that noise and cross talk were a motivation for the skilled artisan to look to Terry, **Terry's encapsulation has nothing to do with reducing cross talk and other interference**. Instead, Terry accomplishes these reductions, e.g., by using a lower transmission rate when there are fewer packets to transmit: "selecting a communication mode providing a relatively lower transmitted bit rate in response to there being no buffered data packets to be transmitted and selecting a communication mode providing a relatively higher transmitted bit rate when there are buffered data packets to be transmitted...The use of a lower frequency reduces signal levels and coupling during relatively idle (no data transmission) times, so that over many

similar communications there is an aggregate reduction in interference and a consequent increase in aggregate communications capacity. " (Terry, col. 2, lines 25-32 and lines 38-42) Terry also teaches limiting cross talk and other interference by monitoring noise energy: "the communications system provides half duplex communications on the communications path, and the noise energy received via the communications path is monitored during a monitoring period following receipt of a signal burst via the communications path and before transmission of a signal burst in an opposite direction via the communications path. The communications system can provide for any of a plurality of communication modes providing different transmission rates for the signal bursts on the communications path, the method preferably further comprising the step of changing the communication mode for signal bursts in dependence upon the determined signal to noise ratio." (Terry, col. 3, line 65-col. 4, line 10). **Accordingly, Terry's teachings regarding avoiding cross talk would not lead one to use Terry's encapsulation teachings, but rather would lead one to use Terry's variable transmission frequencies and noise energy monitoring, as discussed above.**

The Office Action's Treatment of VDSL vs. ADSL Is Insufficient

Still further, the Office Action asserts that it would be obvious to change from the ADSL facilities taught by Olshansky to the VDSL facilities recited in claim 10 because ADSL and VDSL are both members of the DSL family (see Office Action, page 3, fourth paragraph). The fact that ADSL and VDSL are members of the same "family" is insufficient evidence that it would be obvious to change from one to the other. The Office Action has not proven how the differences in ADSL and VDSL would be overcome, and such proof is required in order to establish a *prima facie* case of obviousness.

Applicants have attached a copy of the VDSL specification to this Response as well (ITU G.993.1). If one compares the ADSL and VDSL specifications, there are numerous differences at even the most basic definitional levels. For example, the ADSL specification provides up to 4 AS bearer channels that carry downstream traffic and up to 3 LS bearer channels that carry duplex traffic (see, e.g., the Rodbell article, third

paragraph). On the other hand, the VDSL specification uses frequency division duplexing to provide two upstream and two downstream frequency bands (see VDSL specification, page 7, section 6.1). Accordingly, the mere fact that ADSL and VDSL are part of the same family has nothing to do with whether or not one type of transmission can be used in lieu of another.

For at least the above stated reasons, Applicants submit that claim 38 is patentable over the cited art. Claims 39-47, dependent from claim 38, are also patentable over the cited art and recite additional combinations of features not taught or suggested in the cited art.

Claim 48 recites a combination of features including: "encapsulating an Ethernet frame within a first frame to be transmitted over a very high speed digital subscriber line (VDSL) facility". The same teachings of Olshansky and Terry, highlighted above with regard to claim 38, are alleged to teach the above highlighted features of claim 48. Applicants respectfully submit that Olshansky and Terry do not teach or suggest the above highlighted features of claim 48 either. Accordingly, claim 48 is patentable over the cited art. Claims 49-52, dependent from claim 48, are also patentable over the cited art and recite additional combinations of features not taught or suggested in the cited art.

Claim 8 recites a combination of features including: "encapsulating said previously stored Ethernet frames within a plurality of frames, … and transmitting said plurality of frames over said VDSL facility". The same teachings of Olshansky and Terry, highlighted above with regard to claim 38, are alleged to teach the above highlighted features of claim 8. Applicants respectfully submit that Olshansky and Terry do not teach or suggest the above highlighted features of claim 8 either. Accordingly, claim 8 is patentable over the cited art. Claims 9 and 30-33, dependent from claim 8, are also patentable over the cited art and recite additional combinations of features not taught or suggested in the cited art.

Claim 53 recites a combination of features including: "extracting an Ethernet frame from a first frame received over a very high speed digital subscriber line (VDSL) facility". The same teachings of Olshansky and Terry, highlighted above with regard to claim 38, are alleged to teach the above highlighted features of claim 53. Applicants respectfully submit that Olshansky and Terry do not teach or suggest the above highlighted features of claim 53 either. Accordingly, claim 53 is patentable over the cited art. Claims 54-56, dependent from claim 53, are also patentable over the cited art and recite additional combinations of features not taught or suggested in the cited art.

Claim 10 recites a combination of features including: "receiving frames from said VDSL facility, ... extracting Ethernet frames from the received frames". The same teachings of Olshansky and Terry, highlighted above with regard to claim 38, are alleged to teach the above highlighted features of claim 10. Applicants respectfully submit that Olshansky and Terry do not teach or suggest the above highlighted features of claim 10 either. Accordingly, claim 10 is patentable over the cited art. Claims 11 and 34-37, dependent from claim 10, are also patentable over the cited art and recite additional combinations of features not taught or suggested in the cited art.

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CONCLUSION

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Applicants submit that the application is in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees, or credit any over payment, to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5957-48401/LJM.

Respectfully submitted,

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